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Indian Standard

CODE OF PRACTICE FOR POULTRY HOUSING

(Second Revision)

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Indian Standard

CODE OF PRACTICE FOR POULTRY HOUSING

(Second Revision)

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Indian Standard

CODE OF PRACTICE FOR POULTRY HOUSING

(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 30 August 1985, after the draft finalized by the Animal Structures and Equipment Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Proper housing is one of the pre-requisites for sound poultry farming. Growing chicks and laying hens need comfortable houses. A comfortable house should provide adequate accommodation, be reasonably cool in summer and sufficiently warm during winter, be free of draughts and at the same time, it should provide adequate supply of fresh air and light and always remain dry. The houses should also give adequate protection against sudden changes and extremes in temperature as these have an adverse effect on the health of the chickens and egg production. Further, it is necessary that the houses should give protection to the birds from their natural enemies, such as foxes, jackals, cats, rats, snakes, kites and crows.

0.3 This standard was first published in 1964 and revised in 1972. On the basis of the suggestions received from Central Avian Research Institute (ICAR), Izatnagar, this revision incorporates the latest practice of housing poultry in the country. The space requirement has been modified and certain additions have also been made in layer house floor and walls.

0.4 There are three systems of poultry keeping, namely, the free-range systems, the semi-intensive system and the intensive system.

0.4.1 In the free-range system, the birds are usually left free to roam during the day and kept confined during the night. This system of keeping poultry is common in the rural parts of the country.

0.4.2 In the semi-intensive system, the birds are provided with a night shelter surrounded by open but fenced runs for the day.

0.4.3 In the intensive system, the birds are totally confined with arrangements for feeding, watering, nesting, etc, inside the house itself. This system is widely practised in India. This system needs adequate attention regarding nutrition and management.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960.* The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard lays down the guidelines for location, space requirement and the methods of construction of different classes and types of poultry houses including the necessary fixtures and equipment.

1.2 This standard does not cover the details of houses meant for keeping ducks, geese, turkeys and guinea fowls.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Broiler — A young chicken (usually 9 to 12 weeks of age), that is, tender meated with soft pliable, smooth-textured skin and flexible breast bone cartilage of either sex.

2.2 Brood — A group of chicks hatched out from the same batch of eggs.

2.3 Brooder — A device for providing artificial warmth to the chicks.

2.4 Brooder House — A house used for rearing chicks from day-old with arrangements for artificial heating and light.

2.5 Chicken — Birds including chicks, broilers, layers, pullets, cockrails and cocks.

2.6 Chick — Includes day-old chicks only.

2.7 Cock — A cock is a mature male chicken with coarse skin, toughened and darkened meat and hardened breast bone tip.

2.8 Feeder (Feed Hopper) — A specially designed trough or utensil where feed for chicken is kept.

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*Rules for rounding off numerical values (*revised*).

2.9 Heavy Breeds — Dual purpose or meat type breeds, such as Rhode Island Reds, Plymouth Rocks and New Hempshire, weighing at the age of sexual maturity 2·50 kg or more in case of females and 2·95 kg or more in case of cockrails.

2.10 Layer — A female chicken above the age of 150 days in case of light breed and 175 days in case of heavy breed.

2.11 Layer House — A house in which laying chickens are kept.

2.12 Laying Nest — A box or cage where the chickens lay eggs.

2.13 Light Breeds — Egg laying type breeds; such as White Leg Horn and Black Minarcas weighing at the age of sexual maturity, about 1·80 kg in case of females and about 2·25 kg in case of cockrails.

2.14 Perches or Roosts —A circular or rectangular bar placed horizontally above the floor for the chicken to roost at night.

2.15 Waterer — An appropriately designed equipment for providing drinking water to the chicken.

2.16 Trap Nest — A laying nest with a specially designed automatic front, in which the chicken get trapped when they enter to lay eggs.

3. CLASSIFICATION OF HOUSES

3.1 The house, for convenience, shall fall broadly under two categories, namely, the layer house (*see* **6**) and the brooder house (*see* **7**). The layer house shall normally accommodate adult birds 20 weeks of age and above. The brooder house shall accommodate chickens (layer or broilers) from day-old to 10 weeks of age which are required to be reared under artificial heat. The brooder house and/or layer house may also be used for housing growing stock after the brooding stage. Under all-in all-out system a layer house is used for brooding, rearing and laying purposes.

3.2 There shall be two types of layer houses, namely, the stationary type (*see* **6.1**) and the portable type (*see* **6.2**).

4. LOCATION

4.1 The poultry house shall be located on a fairly raised and properly drained site not liable to flooding.

4.2 The poultry house shall be so located and oriented as to avoid excessive solar heat and draughts in areas which experience high temperature for most part of the year while they should be well exposed to the sun but no draughts in areas where the temperature is usually low. The house should have proper ventilation and light with circulation of fresh air to keep it dry.

5. SPACE REQUIREMENTS

5.1 Floor Space Requirement — The floor space provided per bird shall be as given in Table 1.

TABLE 1 FLOOR SPACE REQUIREMENT PER BIRD IN DEEP LITTER INTENSIVE SYSTEM

SL No.	AGE	FLOOR SPACE PER BIRD, *Min*	
		Light Breeds	Heavy Breeds
(1)	(2)	(3)	(4)
	weeks	cm^2	cm^2
i)	0 to 8	700	900
ii)	9 to 12	950	1 800
iii)	13 to 20	1 500	2 250
iv)	21 and above	1 800	2 700

NOTE 1 — The floor space requirement per bird (8 weeks and above) in semi-intensive system will be nearly half of the above requirements.

NOTE 2 — The smaller the area of a house, more floor space per bird is required. The larger the area of a house, less floor space per bird is required as bigger houses have more actual usable floor space per bird.

NOTE 3 — Extra floor area need to be provided per bird in the warm weather while minimum recommended floor space per bird will be enough during the winter season.

5.2 Feeder Space Requirement — The minimum feeder space required per bird shall be as given in Table 2.

TABLE 2 FEEDER SPACE REQUIREMENT PER BIRD

SL No.	AGE	FEEDER SPACE PER BIRD *Min*
(1)	(2)	(3)
	weeks	linear cm
i)	0 to 2	2·5
ii)	3 to 6	4·5
iii)	7 to 12	7·5
iv)	13 and above	12·5

NOTE — In circular feeder, the space requirement (length of the circumference) shall be half of the above.

5.3 Watering Space Requirement — The minimum watering space requirement per 100 birds, namely, running length in the case of channel type of trough and capacity in the case of fountain type of trough, shall be as given in Table 3.

TABLE 3 WATERING SPACE REQUIREMENT PER 100 BIRDS

SL No.	AGE	WATERING SPACE, *Min*	
		Running Length of Channel Type of Trough	Capacity of Fountain Type of Trough
(1)	(2)	(3)	(4)
	weeks	cm	litres
i)	0 to 2	50	9·0
ii)	3 to 12	100	18·0
iii)	13 and above	250	22·5

NOTE — *In case of fountain type trough, the capacity should be doubled during summer.*

5.4 Brooding Space Requirement — The minimum brooding space requirement per bird shall be 45 cm^2 under a brooder.

6. LAYER HOUSE

6.1 Stationary Type —The stationary or permanently built type of layer house is used in the intensive system of poultry keeping where large numbers of birds are to be managed under one roof. This type of house may be used in the semi-intensive system also.

6.1.1 *Capacity and Dimensions* — The capacity, in general, for the layer house of the stationary type is in the units of 100, 200, 500 and 1 000 laying birds. The dimensions of this type of house for a particular number of birds would vary according to the floor space specified per bird (*see* **5.1**). A typical layer house of the stationary type, with its nominal dimension is shown in Fig. 1A and a layout of the house with central passage in Fig. 1B.

6.1.2 *Floor* — The floor shall be strong and non-yielding. The floor may be of either cement concrete (*see* IS : 1443-1972*) or brick laid in cement mortar, stone slabs set in cement mortar, or *MOORUM.* The brick joints shall be cement pointed and spaces between the slabs shall be filled with the binding material. The floor shall be constructed at least 25 cm above the ground level.

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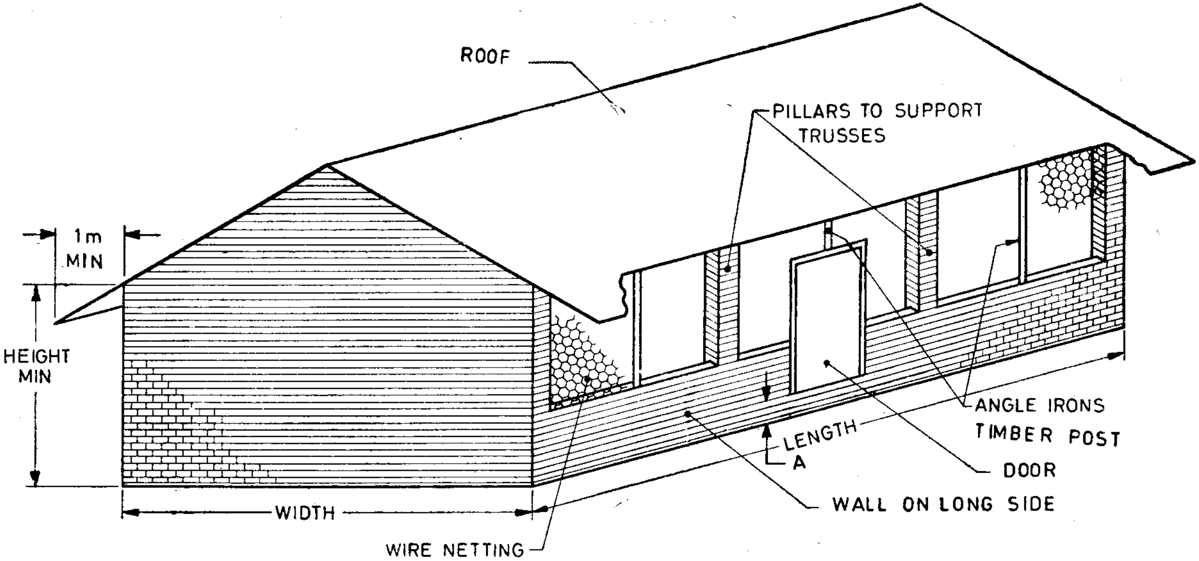
*Code of practice for laying and finishing of cement concrete flooring tiles (*first revision*).

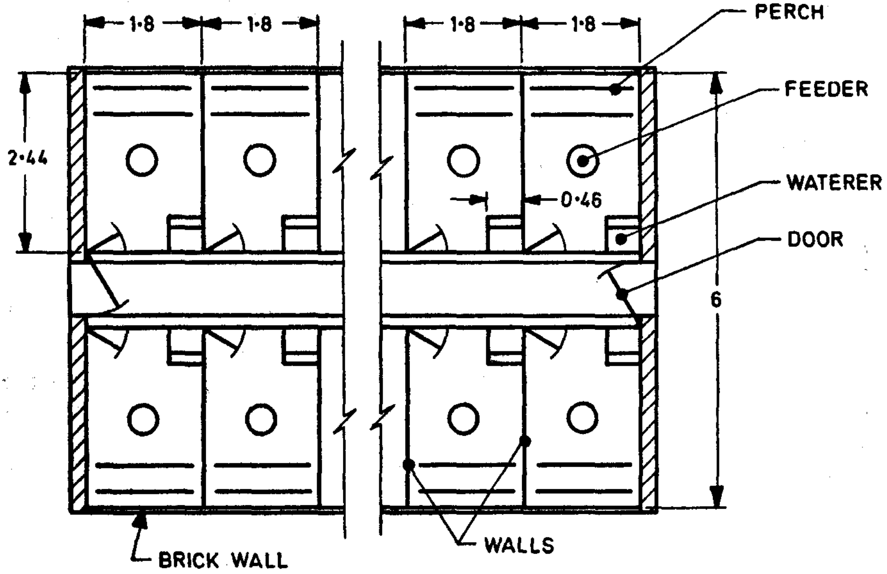


NOMINAL DIMENSIONS OF THE HOUSE

No. of Birds	Length m	Width m	Height, *Min* m
100	6	4·5	2
200	9	6	2
500	18	7·5	2
1 000	36	9	2

1A A Typical Layer House, Stationary Type (Schematic)

Fig. 1 Layer House (*Continued*)



All dimensions in millimetres.

1B Layout Plan for Intensive Poultry House

FIG. 1 LAYER HOUSE

6.1.2.1 All-slat floor may also be used for rearing and laying houses. The slats may be 2·5 cm wide and spaced 3 cm apart. The slats should preferably run lengthwise to the building. The slatted floor should be about 100 cm above the floor of the house. The outside wall of the opensided house below the slat should be provided with movable curtains or covers to keep air from blowing through during cold or hot weather.

6.1.3 *Walls* — The lower portion of the walls on the long sides of the house, up to one-third height from the floor, shall be of brick masonry in cement mortar 20 cm thick or stone *PATTI* with pillars made of reinforced cement concrete (20 × 20 cm), brick pillars plastered (30 × 30 cm), iron pipes or angle iron up to roof level at an interval of 3 to 4 m. The upper two-third portion of the walls shall be made of galvanized mild steel-wire-netting of about one millimetre in diameter having hole sizes of 12 × 12 mm supported by brick masonry pillars and angle iron flushed with pillars from inside. In case of hexagonal wire-netting IS : 3150-1982* may be followed. The inner surfaces of the walls shall be cement pointed.

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*Specification for hexagonal wire netting for general purposes (*second revision*).

6.1.3.1 The height of brick masonry may be increased when the houses are constructed in low temperature area and may be lowered in warm regions in order to help conserve warmth and to provide better ventilation respectively. When cage system of housing is to be followed more area of the side walls have to be provided with wire netting for better ventilation.

6.1.3.2 When the big shed is divided into smaller compartments with a central passage, the partition walls between the compartments may be made 30 cm high in brick work and above that with galvanized wire-mesh.

6.1.3.3 The walls should be protected from hot wind and cold wind by suitably hanging curtains away from the wire mesh.

6.1.4 *Roof* — The roof may be lean-to or gabled type. In case the width of the house is more than 10 m, gabled type of roof with ridge ventilation is recommended. The roofing material may be corrugated asbestos cement sheets, aluminium sheets, galvanzied steel sheets, asphalted corrugated or plain light roofing materials or tiles corrugated or thatch. In case the roof is of thatch, the thickness of the material shall be at the least 15 cm and it shall be made rain-proof and fire-proof. Where the summer is quite severe, the roof made of any of the metallic sheets mentioned above may be covered with a layer of thatch to keep the house cool. This would also help in keeping the house warm in winter. If the roof is made of asbestos cement sheets or of galvanized steel sheets, the upper surface of the roof may also be aluminium painted (*see* IS : 289-1963*) to reflect the sun rays and thus reduce the temperature rise in the house. The eaves of the roof shall project out at least 1 m to prevent the rain water entering into the house.

NOTE — In case the corrugated sheets are used, the space between the corrugations and the top of the wall be filled properly from inside. Reinforced brick slab or stone slab roofing may also be used.

6.1.4.1 *Preparation of cement-lime mixture* — Stir thoroughly 12 parts by volume of cement and three parts by volume of lime (*see* IS : 712-1984†) in 20 parts by volume of water. Add one part by volume of common salt (*see* IS : 797-1982‡) and one-half part by volume of alum (*see* IS : 258-1967§) and stir until all ingredients are well mixed. Apply the mixture evenly with the help of a brush on the inner surface of the gunny sack. Give two coats of the mixture on the outer surface of the gunny sack. Stretch the gunny sack and dry in the sun until it becomes stiff.

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*Specification for aluminium paste for paints (*revised*).

†Specification for building limes (*third revision*).

‡Specification for common salt for chemical industries (*third revision*).

§Specification for potash alum (*first revision*).

6.1.5 *Doors* — The number of doors required shall depend upon the dimensions of the house. The doors on the side walls may be 1·2 m wide and 1·5 m high. In the houses with central passage, the doors in the end walls may be 1·2 m wide and 2 m high and doors in the individual pens 0·6 m wide and 1·8 m high shall be provided. The bottom of the doors shall be 30 cm above the floor at the top of the passage (*see A* in Fig. 1A) in the side wall, the lower half of the door shall be solid and the upper half wire netted. The other details of the doors shall be as given under **6.2.5.**

6.2 Portable Type — This type of layer house is required for a small unit of layers or growers. The main advantage of this house is that it may be shifted from one place to another with ease.

6.2.1 *Capacity and Dimensions* — The layer house of this type is suitable for not more than 25 layers or 50 growers in a unit. Some typical portable layer houses are shown in Fig. 2A, 2B and 2C.

6.2.2 *Floor* — The floor may be made of wire fabric or crimped wire netting or wire mesh or a mesh of expanded metal sheet (*see* IS : 412-1975*) securely fixed to four angle irons, bamboo poles or timber posts. The floor may also be a raised platform of brick work in cement mortar or of wooden plank or galvanized iron sheets in case of deep litter system. In this case, shifting the floor is not possible. If timber posts or bamboo poles are used, they shall be pre-treated and at least two coats of paint of non-toxic type shall be applied to prevent rotting and decay.

6.2.2.1 *Wire-mesh and expanded metal sheet floors* — The wire-mesh flooring shall be made of galvanized mild steel wire of about 2 mm in diametar (*see* IS : 280-1978†) and made into a mesh not more than 12 × 12 mm. The wire-mesh shall be stretched to avoid sagging and be securely fixed. The wire-mesh frame shall be fixed at least 30 cm above the lower ends of the wall supports (*see* **6.2.3**). In case expanded metal is used, the size of the mesh shall be about 6 × 25 mm. This type of floor shall be fixed in the same way to the floor frame as in the case of wire-mesh flooring.

6.2.2.2 *Brick floor* — This shall be in the form of a raised platform (*see* Fig. 2D) about 15 to 20 cm above the ground level. The base for the brick flooring shall be made up of about 5 cm thick layer of rubble of *MOORUM*. For a thickness of 10 cm bricks (*see* IS : 1077-1976‡) should be laid in cement mortar or lime mortar.

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*Specification for expanded metal steel sheets for general purposes (*second revision*).

†Specification for mild steel wire for general engineering purposes (*third revision*).

‡Specification for common burnt clay building bricks (*third revision*).

6.2.3 *Walls* — The walls of the layer house shall be made of galvanized mild steel wire about one millimetre in diameter. The wire netting shall be stretched and held by four wall supports made of angle irons or timber posts or bamboo poles. In case timber posts or bamboo poles are used, they shall be pretreated and given at least two coats of a paint of non-toxic type to prevent rotting and decay. Where the portable type is designed for intensive system of poultry keeping, the bottom 25 cm of the wall above the floor level, which is meant to support the lither, should be protected by galvanized iron sheets or asbestos cement sheets.

6.2.4 *Roof* — The roof may be lean-to or gabled type (*see* Fig. 2). The slope of the roof shall depend upon the rainfall and other climatic conditions of the region. The roof may be made of plain or corrugated asbestos cement sheets (*see* IS : 459-1970*), plain or corrugated galvanized steel sheets (*see* IS : 277-1977†), aluminium sheets (*see* IS : 737-1974‡), asphalted corrugated or plain light roofing material or *SIRKI* thatch. In case the roof is thatched, the thatching shall be at least 15 cm in thickness and it shall be rain-proof and fire-proof. In heavy rainfall areas with gunny sacks treated cement-lime mixture (*see* **6.1.4.1**) may be used with thatch. The eaves of the roof shall project out sufficiently long to prevent the rain water entering into the house.

6.2.5 *Door* — A door, 75 cm high and 60 cm wide, shall be provided at the front side of the house. The bottom of which should be 0·3 m above the floor. The door frame may be of angle iron, timber post or bamboo poles. If the door frame is made of timber or bamboo, these shall be given coatings of a paint of non-toxic type to prevent decay and rotting. The door leaf may be of galvanized wire netting stretched in an angle iron, timber or bamboo frame. The door leaf shall fit the entrance closely and this shall be attached to the door frame with at least two hinges and it shall open outside. The door leaf may be provided with a staple. A pop hole of size 25 × 30 cm may be provided.

7. BROODER HOUSE

7.1 The brooder house, to keep and rear chicks during the first eight weeks of their life, may preferably be constructed 35 m away from the layer houses, if this much space is not possible then the maximum available distance may be kept. The location of the brooder house should be such that it shall face against the direction of the wind coming from the layer house. The constructional and other details shall be the same as those of the layer house of the stationary type (*see* **6.1**) with addition of side screens of

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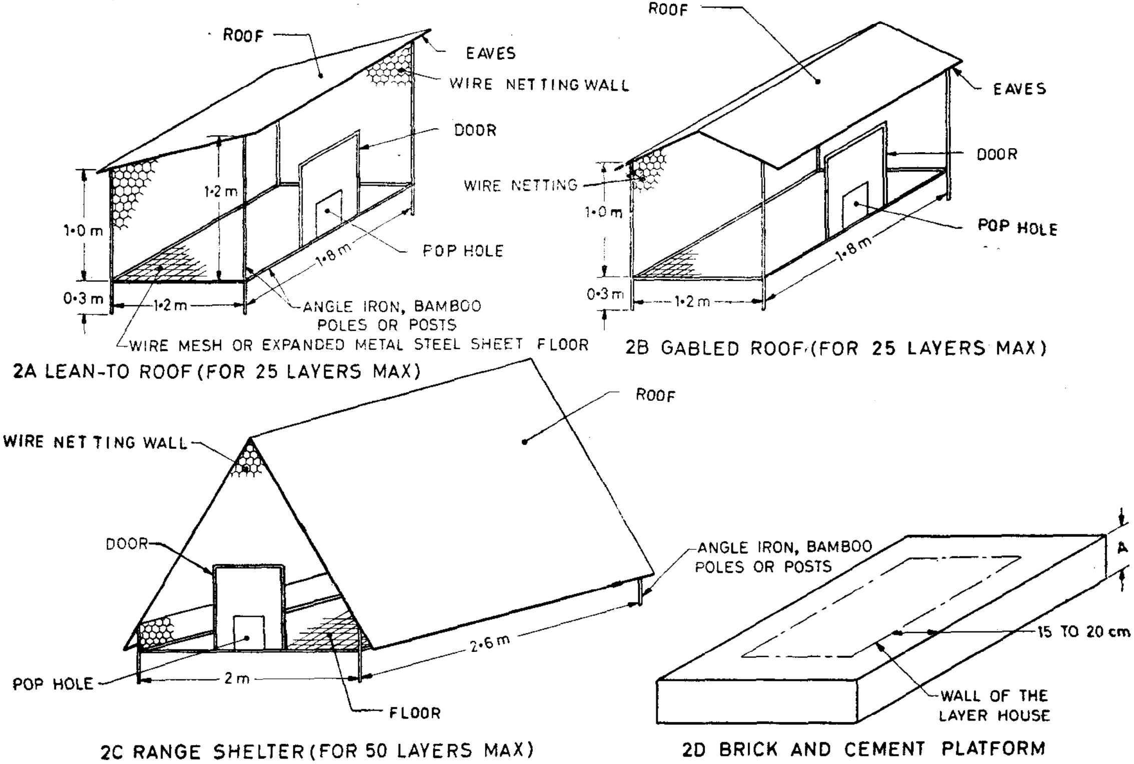
*Specification for unreinforced corrugated and semi-corrugated asbestos cement sheets (*second revision*).

†Specification for galvanized steel sheets (plain and corrugated) (*third revision*).

‡Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*second revision*).



2A LEAN-TO ROOF (FOR 25 LAYERS MAX)

2B GABLED ROOF (FOR 25 LAYERS MAX)

2C RANGE SHELTER (FOR 50 LAYERS MAX)

2D BRICK AND CEMENT PLATFORM

FIG. 2 TYPICAL LAYER HOUSES, PORTABLE TYPE (SCHEMATIC)

polyethylene, hessian cloth, tarpaulin, polyethylene sheets or any other suitable material. However this condition may not be fulfilled when all-in all-out system is followed. In this case, the poultry house may be partitioned temporarily by hessian cloth curtains or wire netting partition provided with hession cloth or by polyethylene screens, etc, as per the floor space requirements. A typical layout of a brooder house is shown in Fig. 3.

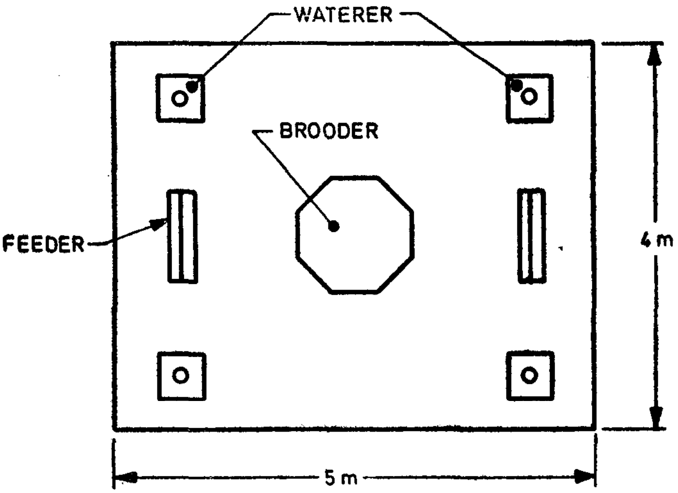


FIG. 3 A TYPICAL LAYOUT PLAN FOR BROODER HOUSE

8. FIXTURES AND EQUIPMENT

8.0 The following fixtures and equipment may be provided in a layer house.

8.1 Perches (Roosts) — The perches if provided may be in the form of straight-peeled timber poles measuring 5 × 7·5 cm at their rectangular edges or of round bamboos having a diameter of about 5 cm conduit pipe. In case timber poles are used, the sharp edges shall be rounded off. The distance between two perches, centre to centre, shall be at least 35 cm and the perches shall be supported by 5 × 10 cm cross pieces. The perches shall be fixed at least 25 cm away from the rear wall and shall be fixed at a height between 55 and 75 cm from the floor. The perches shall be so fixed that they are easily removable for cleaning and disinfecting purposes. The perches shall be given a coating of anticorrosive or protective non-toxic paint. Perch space shall be provided at the rate of 15 cm per chicken. In case of heavy breeds, it may be raised to 25 cm.

8.2 Laying Nests —It may be so located that they are easy for the layers to approach and easy for handling. In poultry houses with central passage, the laying nests may be provided on the passage wall in such a manner that eggs may be collected from the passage.

8.3 Lighting — Provisions for lighting in poultry houses is made to provide minimum of 14 hours day length to the birds. Wherever, therefore, electricity is available without any fear of frequent current failures, arrangements for such lighting shall be made in the poultry house in such a manner as to provide 25 W bulb for each 10 m^2 floor space or 60 W bulbs for 25 m^2 floor space, or equivalent fluorescent tube lights. The bulbs for this purpose shall be fixed 1·8 to 2 m above the floor and shall be so arranged that the lighting is uniform throughout the house. The switches for lighting system may be fixed outside the house so that the light may be switched on or off from outside.

NOTE — Break in the continuity or irregular supply of the lighting system results in drop in egg production or even put the birds to moult.

8.4 Feeders — Feeders (*see* IS : 5255-1969*) shall be in equidistant rows ensuring a minimum distance of 1 m between two feeders. The top edge of the feeder shall be held at a level with the back of the birds.

8.5 Waterers — The waterers (*see* IS : 5283-1969†) shall be fixed in equidistant rows ensuring a minimum distance of 1 m between two waterers in a row alternating with the feeders' rows. Long channel type of waterers (*see* Fig. 4) if adopted should be provided on the central passage wall and/or at the two long walls at a height of 38 to 40 cm above the floor. Long channel when provided along the two long walls of the poultry house, it shall be covered with a strong iron grill at 60° angle so as to avoid roosting of the birds on the channel wall and thereby making the water dirty with their droppings. However, it should not interfere the birds from drinking water.

8.6 Grit Hopper — When the poultry feed does not contain hard grits to enable the birds to grind the feed ingredients, a grit hopper either of metal or wood or earthen pot should be provided at one corner of the house. When birds are kept in a large house not partitioned in small compartments more than one grit hoppers may be placed at convenient places in the house.

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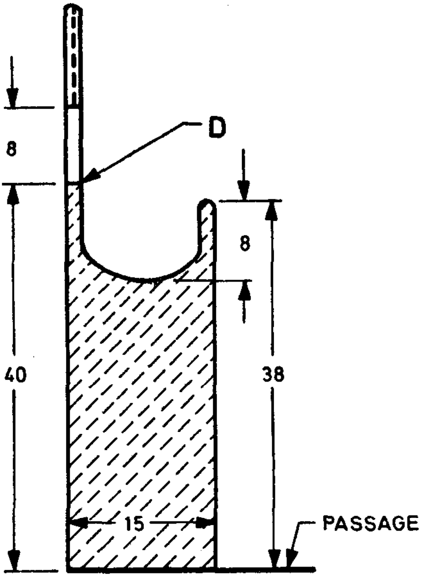
*Specification for portable poultry feeders.

†Specification for poultry waterers, portable.



All dimensions in centimetres.

FIG. 4 ENLARGED VIEW OF WATER CHANNEL